

CLAIMS

1. A wrapping device for wrapping an object to be wrapped of substantially cuboid shape with predetermined width, length, and thickness having top and bottom faces opposed in a thickness direction, front and rear end faces opposed in a longitudinal direction, and right and left side faces opposed in a width direction in a wrapping material being fusible by heating, comprising:
 - a mounting table for mounting the object;
 - a movable folder; and

10 a front face heater adapted to heat the wrapping material to such a temperature as fusible;

the mounting table having a front bottom step;

the movable folder having a front top step and being movable toward the mounting table;

15 wherein the front top step is adapted to take its position facing to the front bottom step in the thickness direction when the movable folder is moved to the mounting table;

in this state, the front face heater is movable between the front bottom step and the front top step, so as to fuse the wrapping material of the front end face.

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- 2. The wrapping device as defined in claim 1, further comprising:
 - a side face interfolding member; and
 - a side face heater adapted to heat the wrapping material to such a temperature as fusible;

25 wherein the object on the mounting table is slidable in a sliding direction passing through the side face interfolding member; and

wherein the wrapping material is interfoldable on at least one of the right and left side faces of the object when the object passes through the interfolding member;

the side face heater being provided ahead of the interfolding member in
5 the sliding direction.

3. The wrapping device as defined in claim 2,

wherein the mounting table comprises a mounting face for mounting
the object thereon;

10 the mounting face being slanted relative to the horizontal;

the object being slideable downward along the mounting face.

4. The wrapping device as defined in claim 2 or 3, further comprising a
lower movable portion adapted to support the object from the lower side,

15 the lower movable portion being movable in the sliding direction of the
object and urged upward.

5. The wrapping device as defined in claim 4,

wherein the lower movable portion has a projection;

20 wherein the projection is adapted to interfold the wrapping material
protruded from the rear end face to at least one of the right and left side faces.

6. The wrapping device as defined in one of claims 2 to 5, further
comprising an upper movable portion with a projection,

25 wherein the projection is adapted to interfold the wrapping material
protruded from the front end face to at least one of the right and left side
faces.

7. The wrapping device as defined in claim 6,
wherein the front face heater is attached to the upper movable portion.

5 8. The wrapping device as defined in one of claims 2 to 7,
wherein the side face interfolding member has rollers each with a
conical surface, so that the wrapping material protruded from the top and
bottom faces to at least one of the right and left side faces of the object is
interfolded by the conical surfaces when the object is slid.

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9. The wrapping device as defined in one of claims 2 to 7,
wherein the side face interfolding member has slots;
the slots being slanted relative to the sliding direction of the object so
that the wrapping material protruded from the top and bottom faces to at least
15 one of the right and left side faces of the object is interfolded by being guided
into the slots when the object is slid.

20 10. The wrapping device as defined in claim 8 or 9, further comprising a
side face heater adapted to heat the wrapping material to such a temperature
as fusible below the side face interfolding member.

25 11. The wrapping device as defined in claim 1,
wherein the mounting table has a rear bottom step;
so that a receptacle is formed between the front and the rear bottom
steps of the table,
a distance between the front and the rear bottom steps being
substantially the same as the length of the object.

12. A wrapping device for wrapping an object to be wrapped of substantially cuboid shape with predetermined width, length, and thickness having top and bottom faces opposed in a thickness direction, front and rear 5 end faces opposed in a longitudinal direction, and right and left side faces opposed in a width direction, in a wrapping material being fusible by heating, comprising:

- 10 a mounting table;
- first movable projections;
- 15 a second movable projection;
- an interfolding portion arranged outside of the width direction of the mounting table; and

20 a side face heater adapted to heat the wrapping material to such a temperature as fusible;

25 wherein the mounting table has a mounting portion for mounting the object thereon, a width of which portion is substantially the same as that of the object;

wherein the mounting table is movable up and down, so that the mounting portion is located upper than the top face of the interfolding portion 20 at the upper position where the table is located upward, and so that the mounting portion is located lower than the top face of the interfolding portion at the lower position where the table is located downward;

25 wherein the first projections are movable in the longitudinal direction along at least one of the right and left side faces of the object, so as to move to interfold the material protruded from the front and rear end faces toward the at least one of the side faces;

wherein the second projection is movable in the thickness direction

along the at least one of the side faces of the object, so as to move to interfold the material protruded from the top face toward the at least one of the side faces; and

5 wherein the side face heater is movable toward the at least one of the side faces of the object mounted on the mounting table at the lower position.

13. The wrapping device as defined in claim 12 further comprising a support,

10 wherein the support is adapted to support the mounting table, thereby maintaining the upper position;

the support having a knob;

operation of the knob releasing supporting by the support, thereby allowing the mounting table to move to the lower position.

15 14. The wrapping device as defined in claim 12 or 13,

wherein in the case of making the mounting table move downward to be at the lower position from the upper position so that the wrapping material protruded from the bottom face and located above the interfolding portion is interfolded by passing through the top face of the interfolding portion with 20 the bottom face of the material mounted on the mounting portion slanted relative to the top face of the interfolding portion.

15. The wrapping device as defined in one of claims 12 to 14,

25 wherein the second projection has a flat end, so that in the case of making the second projection move to the mounting table, the end is slanted relative to the top edge of the side face of the object mounted on the mounting table when the end passes through the top edge.

16. The wrapping device as defined in one of claims 12 to 15,

wherein the first projections are formed at four places adjacent to opposite ends in the longitudinal direction of the right side face and the left side face of the object mounted on the mounting table and have operating portions adapted to operate the first projections.

17. The wrapping device as defined in one of claims 12 to 16 further comprising:

10 a movable folder; and

a front face heater adapted to heat the wrapping material to such a temperature as fusible;

wherein the mounting table has a front bottom step and a rear bottom step and forms a receptacle with substantially the same length as the object 15 between the front and the rear bottom steps; and

wherein the folder is provided with a front top step and movable toward the mounting table, so that the front top step is adapted to take its position facing to the front bottom step in the thickness direction when the movable folder is moved toward the mounting table,

20 so that the front face heater is adapted to be displaced between the front bottom step and the front top step, thereby fusing the wrapping material of the front end face.

18. The wrapping device as defined in claim 17 further comprising a frame

25 holding the second movable projection,

the frame and the movable folder being pivotable;

the mounting table being of rectangular shape;

pivot axes of the frame and the folder being arranged out of one of the sides of the rectangular table and in parallel with the side.

19. The wrapping device as defined in one of claims 1 to 18,

5 wherein at least one of the front face heater and the side face heater is constituted by an elastic material of cylindrical shape and a heating element embedded in the elastic material.

20. A wrapping method using the wrapping device as defined in one of

10 claims 1 to 10,

 wherein the wrapping material has a width wider than that of the object to be wrapped, and a length more than twice the total amount of the length and thickness of the object; and comprising the steps of:

15 wrapping the material around the object to cover the top face, the rear end face, and the bottom face therewith;

 fusing the material by the front face heater with the front end face sealed with the front bottom step and the front top step; and

 fusing the material as interfolded at the right and left side faces.

20 21. A wrapping method using the wrapping device as defined in one of claims 11, 17, 18, and 19,

 wherein the wrapping material has a width wider than that of the object, and a length more than twice the total amount of the length and thickness of the object; and comprising the steps of:

25 mounting the material on the mounting table to cover the receptacle therewith, with a first longitudinal end of the material on the front bottom step;

folding the material under the bottom face of the object by the front bottom step and the rear bottom step after mounting the object on the material on the table so as to engage with the receptacle of the table;

5 folding back the material to cover the top face of the object with a second longitudinal end of the material moved to the front bottom step, whereupon folding the second end by the front top step with the movable folder moved; and

10 wrapping the top and bottom faces and the front and rear end faces of the object with the material by bonding the first end and the second end of the material by means of the front side heater.

22. A wrapping method using the wrapping device as defined in one of claims 12 to 19,

15 wherein the wrapping material has a width wider than that of the object to be wrapped, and a length more than twice the total amount of the length and thickness of the object; and comprising the steps of:

bonding one longitudinal end and the other longitudinal end of the material so as to cover the top and bottom faces and the front and rear end faces of the object with the material;

20 interfolding the edges in the longitudinal direction of the right and left side faces of the material inward by the first movable projections;

interfolding a top in the thickness direction of the right and left side faces of the material inward by the second movable projection;

25 interfolding a bottom in the thickness direction of the right and left side faces inward by moving the mounting table to the lower position; and

bonding by the side face heaters.